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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,909	08/22/2003	Chikara Yamamoto	KAW-304-USAP	8553
28892	7590	11/09/2004	EXAMINER	
SNIDER & ASSOCIATES P. O. BOX 27613 WASHINGTON, DC 20038-7613			SEVER, ANDREW T	
			ART UNIT	PAPER NUMBER
			2851	

DATE MAILED: 11/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/645,909

Applicant(s)

YAMAMOTO, CHIKARA

Examiner

Andrew T Sever

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 5-9, 11-15, 17, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Jung (US 6,144,420.)

Jung teaches in figure 5 a projector optical system comprising:

A digital micro-mirror device (DMD) for modulating illumination light (151, 158, 161), the DMD including minute mirror elements with variable light-reflecting directions, the minute mirror elements being arranged regularly within a plane so as to correspond to respective pixels of an image, each minute mirror element switching, according to a video signal fed therein, between two states having respective angles of rotation different from each other so as to selectively reflect the illumination light into one of first and second directions; (This is the inherent method by which a DMD operates, see for example US 5,061,049 to Hornbeck, 5,535,047 to Hornbeck, 5,061,049 to Hornbeck, US 2003/0016335 to Penn, US 6,582,080 to Gibbon et al.)

An illumination optical system for illuminating the DMD with a luminous flux having a uniform polarization direction (110 and 120, the DMDs are illuminated with light having a uniform polarization direction);

A projection optical system for projecting onto a predetermined projection surface the luminous flux modulated by the DMD (180); and

Luminous flux separating means for making light from the illuminating optical system incident on the DMD and guiding to the projection optical system the illumination light modulated by the DMD and emitted in the first direction (130, 140,);

Wherein the luminous flux separating means has a polarization separating surface for separating a luminous flux incident on the DMD and a luminous flux emitted from the DMD from each other (not labeled but 130 is a PBS with a polarization separating surface in the middle); and

Wherein polarization direction rotating means for rotating a polarization direction is disposed between the polarization separating surface and the DMD (153, 157, and 163).

With regards to applicant's claim 2:

The luminous flux separating means is a prism member

With regards to applicant's claim 3:

The polarization direction rotating means is specified in column 6 lines 8-16 to be quarter-wave plates.

With regards to applicant's claim 5:

See column 6 lines 8-22.

With regards to applicant's claim 6:

Jung's system is a projector apparatus.

With regards to applicant's claim 7-9, 11-15, 17, and 18:

They are essentially the same as claims 1-3, 5 and 6, with only minor differences in claim language and in the case of claims 13-15, 17, and 18 the use of polarization direction arranging device instead of polarization direction rotating means/device, however any rotation device would also be an arranging means/device as they do not have separate meanings in the art and the applicant has not ascribed a separate meaning to them (applicant gives both the same function (that of changing a polarization direction) and further limits them in claim 15 and claim 3 respectively to be quarter-wave plates.)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4, 10, and 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jung as applied to claims 1-3, 5-9, 11-15, 17, and 18 above, and further in view of Cannon et al. (US 6,726,332.)

As described in more detail above, Jung teaches a projector optical system comprising a DMD and associated optical system among which is included a projection optical system. Jung does not specifically teach that the projection optical system is telecentric. Cannon et al. in column 4 lines 1-9 teaches that in projection optical systems, especially DMD systems the projection optical system are typically telecentric. Given the teaching of Cannon that it is typical to use telecentric projection optical systems, well of ordinary skill in the art at the time the invention was made would have used a telecentric projection optical system in the projector optical system taught by Jung.

Response to Arguments

5. Applicant's arguments filed 9/7/2004 have been fully considered but they are not persuasive.

Applicant's arguments with regards to claim 1 will be addressed all other arguments are based on claim 1. Applicant argues that the Jung reference does not read on the claim because the illumination optical system (being limited to parts 111, 110, 113, 121, 122, and 123) does not polarize the light (luminous flux), rather the light is polarized by beamsplitter 130 which is part of the luminous flux separating means. Applicant argues that the claim language prohibits the beamsplitter from polarizing the light that rather it must receive polarized light from the above illumination optical system.

The office disagrees.

First the section of the claim addressing the illumination optical system only states that the illumination optical system illuminates the DMD (digital micro mirror device) with luminous flux having a uniform polarization direction. The illumination optical system of Jung does illuminate the DMD's with light having uniform polarization direction. Applicant's claim does not claim a specific device for polarizing the light in the illumination optical system only that ultimately the light, which the DMD's receives, has a uniform polarization direction. Accordingly this claim limitation is met.

Second, applicant argues that luminous flux separating means must receive light that has a uniform polarization direction. Applicant makes two basic arguments (based on the claims, applicant also make arguments based on the performance and/or structure

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of the specified invention, but these are irrelevant see *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 Fed cir 1993,) first that since the luminous flux separating means receives light from the illumination optical system it must be uniformly polarized prior to receiving it, this however is not true since as stated above the illumination optical system's limitation clearly states that the light only has to be uniformly polarized by the time it reaches the DMDs. Second applicant on page 13 second paragraph argues that means plus function, applicant is directed to the three criteria for evoking 35 USC 112 6th paragraph:

A claim limitation will be interpreted to invoke 35 U.S.C. 112, sixth paragraph, if it meets the following 3-prong analysis:

- (A) the claim limitations must use the phrase “means for ” or “step for ”;
- (B) the “means for ” or “step for ” must be modified by functional language;
- and
- (C) the phrase “means for ” or “step for ” must not be modified by sufficient structure, material or acts for achieving the specified function.

(MPEP 2181)

The luminous flux separating means obviously meets the first criteria and meets the second, however it clearly does not meet the third, since the applicant further claims on page 3 of the amendments to the claims: “wherein the luminous flux separating means has a polarization separating surface for separating a luminous flux...” Clearly applicant has claimed the structure

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of the luminous flux separating means sufficiently for achieving the specified function and accordingly the claims will be given there broadest interpretation consistent with the specification (see MPEP 2111 and In re Prater 162 USPQ 541, 550-51.)

Applicant's arguments were not found persuasive and accordingly the rejection has been repeated with some modifications to reflect applicant's amendments (and to correct small grammatical and form errors) and made final.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T Sever whose telephone number is 571-272-2128. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AS


JUDY NGUYEN
PRIMARY EXAMINER